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## National culture and operations management: a structured literature review

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National culture has received a substantial amount of interest in the operations management literature. We present the first structured review of articles studying national culture in operations management. Our search returned 51 papers published in ten leading journals between 2000 and 2017. We sort and analyse the papers according to three focus areas of operations management (*strategy*, *execution* and *improvement*). We also analyse the papers according to whether they address the *relevance* of national culture, the *impact* of national culture or the *actions* managers can use to manage or mitigate the effects of national culture. We find that national culture appears as a relevant variable in all focus areas of operations management research but that the direction and strength of its impact remain undetermined. Only a handful of papers address how managers can actively deal with challenges related to national culture. We propose a research agenda and a guiding framework for future research.

**Keywords:** national culture; operations management; strategy; execution; improvement; literature review

### 1. Introduction

Globalisation has had a game-changing effect on operations management (OM) during the past two decades. Consequently, the notion of national culture has become a central theme in our field (Metters et al. 2010). Although it has received a substantial amount of research attention, it is still unclear whether and how national culture influences OM practice.

Operations management deal with the processes that transform resources into products and services (Slack, Brandon-Jones, and Johnston 2016). Culture can be defined as a set of shared values in a group of people that distinguishes the members of the group from others and shapes individual behaviour (Schwartz 2014). Accordingly, *national culture* is defined as a set of shared values among people within a specific nation that distinguishes them from other nationalities (Hofstede 1980; Kirkman, Lowe, and Gibson 2017). Studying cultural differences between countries is helpful in explaining the challenges and opportunities managers face when managing operations internationally (Beugelsdijk, Kostova, and Roth 2017).

The spreading of practices throughout multinational companies has been extensively investigated in the international business literature (e.g. Kostova 1999; Jensen and Szulanski 2004). These studies show that national cultural differences (or cultural distance) between dispersed locations can be a major barrier to practice transfer. Practices transferred across national borders may not ‘fit’ the foreign culture, hindering practice implementation (Kostova 1999). This ‘culture matters’ perspective has also found some support in the OM literature. Metters and Zhao (2010) conclude that ‘some OM practices are altered or precluded by culture, while others are more effective in some cultures than others.’ However, there seems to be no general agreement among OM scholars regarding the influence of national culture on OM (Metters 2008; Naor, Linderman, and Schroeder 2010; Netland and Aspelund 2014).

An analysis of the impact of culture on OM practice is complicated by the dynamism of globalisation. Some scholars in international business research argue that national cultural characteristics are less relevant today because of the ‘cross-pollination’ effect of globalisation, suggesting a convergence towards a less border-dependent global culture (Bird and Stevens 2003). This perspective suggests that OM practices are less influenced by cultural differences among nations today than they were a few decades ago (Cheung, Myers, and Mentzer 2010).

Our paper contributes to the debate on national culture in OM. Despite its relevance for both practice and research, no systematic review covering this subject area has been published. The most recent review, by Hope and Muhlemann

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(2001), is unsystematic and predates the significant global changes seen this millennium. We provide an up-to-date structured review of research published in ten leading OM journals from 2000 to 2017. We aim to answer the following broad research questions:

RQ1. What are the relevance and impact of national culture with regard to OM?

RQ2. How should operations managers act to ‘manage’ the potential effects of national culture?

The paper is structured as follows. Section 2 describes the methodology. Section 3 presents the descriptive findings, and Section 4 analyses the existing research on national culture in OM. Section 5 discusses the findings and derives the research agenda. Section 6 concludes with a framework for future studies and contributions.

## 2. Methodology

A systematic literature review was conducted to identify articles concerning national culture in OM. Unlike typical reviews, the structured approach relies on a transparent process (Denyer and Tranfield 2009), enhances rigour, limits search bias and promotes replicability and reliability (Tranfield, Denyer, and Smart 2003).

A review protocol was developed that included information about our research process (e.g. research strategy, inclusion/exclusion criteria) (Tranfield, Denyer, and Smart 2003). We carried out the review in three main phases: keyword search, article shortlisting and selection and, finally, article classification and analysis.

### 2.1 Journal selection and keyword search

We limited the search to OM journals recognised as the most respected internationally. To select journals, we combined the results of eight acknowledged journal rankings (Soteriou, Hadjinicola, and Patsia 1999; Barman, Hanna, and LaForge 2001; Gorman and Kanet 2005; Olson 2005; Holsapple and Lee-Post 2010; Meredith, Steward, and Lewis 2011; Petersen, Aase, and Heiser 2011; Fry and Donohue 2013) (details available from the authors upon request). Our procedure resulted in the inclusion of the following ten journals:

- *International Journal of Operations and Production Management (IJOPM)*
- *International Journal of Production Economics (IJPE)*
- *International Journal of Production Research (IJPR)*
- *Journal of Business Logistics (JBL)*
- *Journal of Operations Management (JOM)*
- *Journal of Supply Chain Management (JSCM)*
- *Manufacturing & Service Operations Management (MSOM)*
- *Production and Inventory Management Journal (PIMJ)*
- *Production and Operations Management (POM)*
- *Transportation Science (TS)*

We further limited the search to articles published between January 2000 and December 2017, starting where the work of Hope and Muhlemann (2001) stopped.

We searched for the keyword ‘cultur\*’ (covering ‘culture’, ‘cultures’ and ‘cultural’) using the ‘title-abstract-keywords’ field of the SCOPUS database. The initial search returned 233 articles.

### 2.2 Article shortlisting and selection

Relevant articles were selected using a set of pre-specified inclusion/exclusion criteria (Denyer and Tranfield 2009). We carefully read the abstracts, as well as the full texts in case of ambiguity. We included only those papers explicitly discussing national culture, and excluded the following:

- Articles focusing on other levels of culture, such as organisational culture. However, studies considering other cultural levels in addition to national culture were included.
- Articles that neither included national culture among the investigated variables nor used it as an explanatory variable.
- Articles focusing on only one country. This choice allowed us to maintain an international perspective and reduce the risk of country bias.

We also excluded three papers for idiosyncratic reasons: one article studying the effect of national cultures on student performance in a teaching setting, as well as a literature review and one editorial to avoid the ‘double counting’ of findings.

Given that inclusion/exclusion decisions cannot be completely objective, multiple reviewers were involved to strengthen the selection reliability (Tranfield, Denyer, and Smart 2003). This structured procedure resulted in 51 included articles.

### 2.3 Article classification and analysis

We used data-extraction forms to increase the reliability of the review (Tranfield, Denyer, and Smart 2003). Practically, this involved using a Microsoft Excel database to classify the 51 articles by:

- Publication details (authors, title, journal and year)
- Research method (method type, research setting, data collection, sample size and measure of culture)
- Culture operationalisation (model of culture)
- OM focus area
- Research objectives and cultural issue
- Key findings related to culture

The first three elements provide an understanding of the general landscape of the study of culture in OM research (Section 3). In addition, the year of publication was used to split the papers into two groups (from 2000 to 2009 and from 2010 to 2017) in order to investigate whether potential contextual changes (e.g. increased globalisation) during these 18 years affect the conclusions drawn from our analysis. We used the remaining elements to analyse the articles in view of the research questions (Section 4).

The appendices (available in the online supplemental material) summarise the articles according to the above classification scheme.

## 3. Descriptive findings

### 3.1 Publication details

We find an increase in publications on national culture in OM, with 12 papers being published from 2000 to 2009, and 39 papers being published from 2010 to 2017. These numbers indicate an increasing interest in the topic. *JOM* and *IJOPM* were the most common outlets, with 16 papers each, followed by *IJPE* (8) and *IJPR* (6). The four remaining papers appeared in *JBL* (2), *JSCM* (2) and *POM* (1).

### 3.2 Research method and context

Empirical research methods were used in 47 articles. The remaining four articles were theoretical. Most of the empirical articles were quantitative (38), and survey-based designs (32) predominate. One explanation could be the availability of secondary data on national culture (e.g. the Hofstede’s or GLOBE indices), which can easily be combined with survey data. Four papers used experiments, and four concerned secondary data analyses exclusively. The amount of qualitative research is limited (8) and mainly based on case studies (6). One paper used interviews exclusively. Surprisingly, only Metters (2008) combined interviews with ethnographic observations, a method extensively used to study culture in other disciplines (Marshall, Metters, and Pagell 2016). Jia and Lamming (2013) was the only paper combining quantitative and qualitative methods.

Seventeen papers focused on two or three countries, while the majority (30) involved an international setting (from 4 to 41 countries). We used the GLOBE cultural clusters (House et al. 2004) to assess whether the full range of cultures was represented among the papers that mentioned the countries included. The following clusters were the most heavily studied: Anglo (34), Confucian Asia (28), Germanic Europe (19) and Latin Europe (19). The following clusters received less research attention: Latin America (13), northern Europe (12), eastern Europe (9), Middle East (7), Sub-Saharan Africa (6) and Southern Asia (6). Overall, the research on national culture in OM is clearly skewed.

### 3.3 Models of national culture

Although criticised, Hofstede's (1980) and House et al.'s (2004) models are among the most popular cross-cultural models in international business research (Beugelsdijk, Kostova, and Roth 2017) and the most commonly used in OM (two-thirds of the reviewed articles) (hereafter, we also refer to them as the dominant models). Both models use a dimensional approach in which nations are scored on a number of cultural characteristics.

In 1980, Hofstede conceptualised four dimensions of national culture: power distance, individualism-collectivism, masculinity-femininity and uncertainty avoidance. Later, two more were added: long-term or short-term normative orientation and indulgence-restraint (Hofstede, Hofstede, and Minkov 2010). Twenty-nine reviewed papers used some or all of Hofstede's dimensions. In 2004, House et al. extended Hofstede's model to include nine dimensions in the so-called GLOBE model: power distance, institutional collectivism, in-group collectivism, future orientation, performance orientation, gender egalitarianism, assertiveness, uncertainty avoidance and humane orientation. Ten reviewed papers used GLOBE. Nine papers did not use these dominant models.

Variances between cultures can also be analysed in terms of cultural distance, which measures 'the extent to which cultures are similar or different' (Shenkar 2001, 519). Cultural distance can be conceptualised using the dominant models. Nine reviewed papers focused on cultural distance, with seven papers referring to Hofstede's dimensions and three referring to GLOBE. Eight studies assessed the aggregate cultural distance based on Kogut and Singh (1988), while Gray and Massimino (2014) evaluated cultural distance for individual dimensions.

## 4. National culture in OM

Managing operations encompasses three distinctive dimensions: strategising, executing and improving operations (Hill and Hill 2012; Slack, Brandon-Jones, and Johnston 2016). We used these focus areas to classify the reviewed articles.

- Strategy concerns long-term operational decisions and the design of the processes and infrastructure needed to enable them.
- Execution includes planning, making and delivering products and services to the market (day-to-day order fulfilment).
- Improvement covers operational improvements and new capability development.

Our analysis reveals that papers focus on three main issues/questions when investigating culture, which we used for cross-comparison purposes:

- *Relevance*: Does national culture matter for the OM focus area?
- *Impact*: How does national culture influence the OM focus area?
- *Action*: What actions can organisations take to manage culture-practice fit or misfit?

Articles addressing 'relevance' and 'impact' issues investigate the influence of culture on OM practice. Note that articles categorised as 'relevance' investigate whether national culture is important for OM practice, while articles categorised as 'impact' investigate the potential direction and strength of national culture's effect on OM practice. Articles addressing the 'action' issue analyse what managers can do (i.e. what actions they can take) to leverage or mitigate the qualities of national culture when implementing OM practices. Table 1 summarises the positioning of the articles.

### 4.1 Relevance: Does national culture matter for OM strategy, OM execution and OM improvement?

Fifteen articles investigated whether national culture matters. Table 2 positions these articles in terms of the focus area they address, as well as their conclusions about the relevance of national culture and culture operationalisation (differences or distance).

Concerning strategy, six papers support the notion that culture impacts operations, while two do not. Similarly, regarding execution, two papers support the notion that culture matters, while three do not. The only two studies regarding improvement suggest that national culture does not have an impact on the phenomena they study. Overall, there is about as many studies supporting the 'culture matters' argument (8) as there are studies that do not (7). Moreover, this parity also holds between the two last decades (2000s vs. 2010s).

Some studies show that the impact of culture can change depending on certain contextual variables at the organisational and national levels. Naor, Linderman, and Schroeder (2010) found that organisational culture weakens the effect of national culture on strategy. Stringfellow, Teagarden, and Nie (2008) observed that cultural, geographic and language distances are strictly related and should be assessed together when analysing their impact on operations. Moreover,

Table 1. Article classification by OM focus area and cultural issue.

Cultural issue	OM focus area			#
	Strategy	Execution	Improvement	
Relevance	Caniato et al. (2015); Elango (2005); Handley and Benton (2013); Jaehne et al. (2009); Naor, Linderman, and Schroeder (2010); Pagell, Katz, and Sheu (2005); Stringfellow, Teagarden, and Nie (2008); Youngdahl, Ramaswamy, and Dash (2010)	Leyer et al. (2016); Morgan, Nie, and Young (2004); Yang et al. (2013); Yen and Sheu (2004); Youngdahl et al. (2003)	Cheung, Myers, and Mentzer (2010); Netland (2016)	15
Impact	Cannon et al. (2010); Hahn and Bunyaratavej (2010); Han, Huang, and Macbeth (2017); Jia and Zsidisin (2014); Li et al. (2010); Metters (2008); Power, Schoenherr, and Samson (2010); Thornton et al. (2013); Wallenburg et al. (2011); Yang et al. (2017)	Bendoly et al. (2006); Chipulu et al. (2014); Cui et al. (2013); Eckerd et al. (2016); Gray and Massimino (2014); Orzes et al. (2017); Ribbink and Grimm (2014); Wong, Sancha, and Giménez Thomsen (2017)	Bockstedt, Druehl, and Mishra (2015); Cagliano et al. (2011); Danese, Romano, and Boscari (2017); Flynn and Saladin (2006); Kull and Wacker (2010); Kull et al. (2014); Pakdil and Leonard (2017); Su and Chen (2013); Vecchi and Brennan (2011); Wiengarten et al. (2011, 2015)	29
Action	Fredendall, Letmathe, and Uebe-Emden (2016); Pullman, Verma, and Goodale (2001); Chen, Su, and Ro (2017)	Rodon, Serrano, and Giménez (2012); Jia and Lamming (2013)	Adam, Flores, and MacÍas (2001); Boscari, Danese, and Romano (2016)	7
#	21	15	15	51

Table 2. Classification of articles based on relevance.

Focus area	Relevant	Not relevant
Strategy	Cultural differences <ul style="list-style-type: none"> <li>• <i>Pagell, Katz, and Sheu (2005)</i></li> <li>• <i>Jaehne et al. (2009)</i></li> <li>• Youngdahl, Ramaswamy, and Dash (2010)</li> </ul> Cultural distance <ul style="list-style-type: none"> <li>• <i>Elango (2005)</i></li> <li>• <i>Stringfellow, Teagarden, and Nie (2008)</i></li> <li>• Handley and Benton (2013)</li> </ul>	Cultural differences <ul style="list-style-type: none"> <li>• Naor, Linderman, and Schroeder (2010)</li> </ul> Cultural distance <ul style="list-style-type: none"> <li>• Caniato et al. (2015)</li> </ul>
Execution	Cultural differences <ul style="list-style-type: none"> <li>• <i>Yen and Sheu (2004)</i></li> <li>• Yang et al. (2013)</li> </ul>	Cultural differences <ul style="list-style-type: none"> <li>• <i>Youngdahl et al. (2003)</i></li> <li>• Leyer et al. (2016)</li> </ul> Cultural distance <ul style="list-style-type: none"> <li>• <i>Morgan, Nie, and Young (2004)</i></li> </ul>
Improvement		Cultural differences <ul style="list-style-type: none"> <li>• Netland (2016)</li> </ul> Cultural distance <ul style="list-style-type: none"> <li>• Cheung, Myers, and Mentzer (2010)</li> </ul>

Notes: Papers published from 2000 to 2009 in italics.



national culture may change over time. Youngdahl, Ramaswamy, and Dash (2010) advise that national culture can change as a result of economic development. Cheung, Myers, and Mentzer (2010) suggest that national culture may no longer be relevant to OM improvement, because of globalisation. Based on the ‘cultural cross-pollination’ argument (e.g. Bird and Stevens 2003), they explain that national values converge, creating new universal values and thus reducing the differences between national cultures.

From the analysis of the 15 articles, we can conclude that the impact of national culture is uncertain for all the OM dimensions because we found mixed results for OM strategy and OM execution, while the very limited number of studies on OM improvement precludes a definitive conclusion. Unfortunately, these studies do not offer much assistance in drawing conclusions, because their main aim is to simply point out whether national culture matters or does not matter for strategic, execution and improvement practices in multinational companies (e.g. Yen and Sheu 2004; Elango 2005) and international supply chains (e.g. Handley and Benton 2013; Yang et al. 2013). While it is unsurprising for studies that found no impact to fail to elaborate further on the role of national culture, this is a limitation of research supporting the ‘culture matters’ argument. One common approach of such research is make the case for conducting future studies in order to develop a deeper understanding of how specific cultural characteristics influence OM and the potential actions that can be taken to manage culture-practice fit or misfit.

A second conclusion concerns contextual variables. The impact of national culture can be influenced by contextual variables at the organisational and national levels. However, the studies do not provide a detailed discussion of how national culture interacts with these variables or how such interactions can evolve over time.

#### 4.2 Impact: How does national culture influence OM strategy, OM execution and OM improvement?

Twenty-nine articles investigated the question of how national culture impacts OM. Tables 3–5 show how these papers are positioned in terms of the cultural characteristic(s) addressed and their conclusions about the influence of culture on the OM dimension analysed.

Table 3. The impact of culture on OM strategy.

Cultural characteristics		Impact		
		Positive	Negative	Not significant
GLOBE dimensions	Power distance	Hahn and Bunyaratavej (2010)*		
	Institutional collectivism	Chen, Su, and Ro (2017)** Li et al. (2010)** Power, Schoenherr, and Samson (2010)* Wallenburg et al. (2011)* Yang et al. (2017)*	Cannon et al. (2010)* Hahn and Bunyaratavej (2010)* Power, Schoenherr, and Samson (2010)* Yang et al. (2017)*	Cannon et al. (2010)*
	In-group collectivism			
	Future orientation			
	Performance orientation			
	Gender egalitarianism			
	Assertiveness			
	Uncertainty avoidance	Chen, Su, and Ro (2017)** Li et al. (2010)** Wallenburg et al. (2011)*	Hahn and Bunyaratavej (2010)*	
	Humane orientation			
	Masculinity			Hahn and Bunyaratavej (2010)*
Others	Gender	Metters (2008)		

Notes: Papers published from 2000 to 2009 in italics.

Thornton et al. (2013) not included as it refers to cultural distance.

\*Operationalised using Hofstede’s dimensions.

\*\*Conversion from characteristics not in the dominant models.



For comparison purposes, in each table, we used GLOBE as main model of reference. We chose GLOBE because it is a renowned model that is extensively used in OM. It allows for a comprehensive conceptualisation of culture because it includes a wider set of dimensions as compared to other popular cross-cultural models (Beugelsdijk, Kostova, and Roth 2017). Uncertainty avoidance and power distance have a direct overlap between the Hofstede's and GLOBE models. Hofstede's collectivism corresponds to the GLOBE model's institutional collectivism. Because masculinity (Hofstede) is only weakly similar to gender egalitarianism and assertiveness (GLOBE), we treated it separately. Concerning articles not using these two dominant models, we positioned them using the GLOBE dimensions only when the authors explicitly associated their cultural characteristics with these GLOBE or Hofstede's dimensions, and we added further characteristics to the tables for the remaining studies with no explicit conversion.

#### 4.2.1 *The impact of culture on OM strategy*

Table 3 shows that the majority of the articles (seven) analysed and found a significant impact on the part of institutional collectivism and uncertainty avoidance on OM strategy. Hahn and Bunyaratavej (2010) is the only study embracing a broader perspective, investigating power distance and masculinity as well. This analysis suggests that OM strategy is mainly influenced by institutional collectivism and uncertainty avoidance, while the other cultural characteristics seem to be less important. Regarding the direction and strength of culture-practice relationships, however, institutional collectivism and uncertainty avoidance show mixed impacts on OM strategy. These conclusions are based on studies published since 2010, except for that of Metters (2008).

We speculate that the reason for these mixed impacts is twofold. First, different levels of cultural characteristics fit different strategies. Power, Schoenherr, and Samson (2010) observed that 'on the issue of individualism vs. collectivism [i.e. low vs. high institutional collectivism], it needs to be said that neither is, of itself, good or bad – they are just different.' In line with this, we suggest that high institutional collectivism and/or high uncertainty avoidance fit operations strategies leveraging teamwork (Power, Schoenherr, and Samson 2010), just-in-time (Yang et al. 2017) and supplier relationships (Chen, Su, and Ro 2017). In contrast, low institutional collectivism and/or low uncertainty avoidance fit operations strategies leveraging technology (Power, Schoenherr, and Samson 2010), supplier performance (Cannon et al. 2010) and service offshoring (Hahn and Bunyaratavej 2010).

However, there are cases of mixed results even when considering the same topic within operations strategy. For example, creating a collaborative organisation via teamwork is claimed to be more effective in collectivistic countries (Power, Schoenherr, and Samson 2010), but the opposite view is also supported (Yang et al. 2017). This contrasting result may be linked to the interaction between culture and contextual variables. For example, Power, Schoenherr, and Samson (2010) found an interaction between culture and the level of development in a country. This means that studies that fail to control for potential interactions may draw inaccurate conclusions about the influence of specific cultural characteristics in terms of their strength or even their direction. Wallenburg et al. (2011) support this argument, recommending the testing of interactions between culture and economic, infrastructural and regulatory factors.

#### 4.2.2 *The impact of culture on OM execution*

Table 4 shows that four articles analysed the impact of one or two cultural traits on OM execution, while three embraced a broader perspective. Compared to studies on OM strategy, studies on OM execution are more evenly spread out among various cultural characteristics. Moreover, OM execution seems to be influenced by more cultural traits (not only institutional collectivism, uncertainty avoidance and power distance but also in-group collectivism, future orientation, humane orientation, masculinity and low-context). Regarding the direction and strength of culture-practice relationships, we found mixed impacts for institutional collectivism and uncertainty avoidance (similar to the case of OM strategy), as well as for power distance and future orientation. These conclusions are based on studies published since 2010, except for that of Bendoly et al. (2006).

The reasons for these mixed impacts seem to be the same as those reported for OM strategy. First, different levels of cultural characteristics fit different execution practices. This is exemplified by Chipulu et al. (2014), who find that high power distance and low institutional collectivism fit project management control, while low power distance and high institutional collectivism fit project team development.

However, again, there are cases of mixed results for similar practices. For example, interdependent activities involving various actors in a multinational company or a supply chain are seen more effective in companies located in collectivistic and future-oriented countries (Bendoly et al. 2006; Eckerd et al. 2016), but the opposite view is also supported by some research (Wong, Sancha, and Giménez Thomsen 2017). As with OM strategy, one potential reason for these

Table 4. The impact of culture on OM execution.

Cultural characteristics		Impact Positive	Negative	Not significant
GLOBE dimensions	Power distance	Chipulu et al. (2014)*	Chipulu et al. (2014)* Orzes et al. (2017)*	
	Institutional collectivism	<i>Bendoly et al. (2006)*</i> Eckerd et al. (2016)** Chipulu et al. (2014)*	Chipulu et al. (2014)* Wong, Sancha, and Giménez Thomsen (2017)	Orzes et al. (2017)*
	In-group collectivism	Wong, Sancha, and Giménez Thomsen (2017)		
	Future orientation	Eckerd et al. (2016)**	Wong, Sancha, and Giménez Thomsen (2017)	
	Performance orientation			
	Gender egalitarianism			
	Assertiveness			Wong, Sancha, and Giménez Thomsen (2017)
Others	Uncertainty avoidance	Chipulu et al. (2014)*	Cui et al. (2013)** Orzes et al. (2017)*	Chipulu et al. (2014)*
	Humane orientation		Wong, Sancha, and Giménez Thomsen (2017)	
	Low-context		Ribbink and Grimm (2014)	
	Masculinity	Chipulu et al. (2014)*		Chipulu et al. (2014)* Orzes et al. (2017)*
	Long-term orientation			Orzes et al. (2017)*
	Indulgence			Orzes et al. (2017)*

Notes: Papers published from 2000 to 2009 in italics.

Gray and Massimino (2014) not included as it refers to cultural distance.

\*Operationalised using Hofstede's dimensions.

\*\*Conversion from characteristics not in the dominant models.

contrasting impacts may be the interaction between culture and contextual variables. For example, Chipulu et al. (2014) found that national culture has an interaction effect with the age of individuals in an organisation.

#### 4.2.3 The impact of culture on OM improvement

Table 5 shows that all the GLOBE dimensions, except for gender egalitarianism, have been subject to multiple investigations. In terms of the direction and strength of culture-practice relationships, there is agreement regarding the non-significant influence of in-group collectivism and humane orientation, while we found contrasting results for power distance, institutional collectivism, future orientation, performance orientation, assertiveness, uncertainty avoidance and masculinity. This analysis suggests that among the three OM dimensions, national culture seems to have the most extensive and complex impact on OM improvement. These conclusions are based on studies published from 2010, except for that of Flynn and Saladin (2006).

Why is the literature inconclusive about the impact of national culture on OM improvement? We believe it can be explained with the same argument we suggested for the mixed impacts on OM strategy and OM execution: different levels of cultural characteristics fit different improvement practices. For example, a high power distance fits improvements leveraging top-management leadership (Flynn and Saladin 2006), while a low power distance fits improvements leveraging teamwork (Cagliano et al. 2011).

There are, again, also cases of mixed impacts when considering the same improvement practice. For example, quality management is found to be more effective in high uncertainty avoidance countries (Kull and Wacker 2010), but the opposite view is also supported (Wiengarten et al. 2011). These contrasting results can be explained by an interaction effect among culture and contextual variables. Wiengarten et al. (2015) found an interaction effect between national and organisational culture, and Bockstedt, Druehl, and Mishra (2015) noted that cultural influence is weakened by national wealth. Overall, this finding supports our second conclusion in Section 4.1, and it is in line with the conclusions drawn

Table 5. The impact of culture on OM improvement.

Cultural characteristics		Impact Positive	Negative	Not significant
GLOBE dimensions	Power distance	Danese, Romano, and Boscari (2017)*	Cagliano et al. (2011)*	Kull and Wacker (2010)
		Flynn and Saladin (2006)*	Danese, Romano, and Boscari (2017)*	Kull et al. (2014)
		Pakdil and Leonard (2017)*	Pakdil and Leonard (2017)*	Wiengarten et al. (2011)*
	Institutional collectivism	Vecchi and Brennan (2011)	Danese, Romano, and Boscari (2017)* Pakdil and Leonard (2017)* Vecchi and Brennan (2011)	Kull and Wacker (2010) Kull et al. (2014)
		Cagliano et al. (2011)*		
		<i>Flynn and Saladin (2006)*</i>		
		Pakdil and Leonard (2017)*		
		Su and Chen (2013)*		
		Wiengarten et al. (2011)*		
		Wiengarten et al. (2015)*		
	In-group collectivism			Kull and Wacker (2010) Kull et al. (2014) Vecchi and Brennan (2011)
	Future orientation	Danese, Romano, and Boscari (2017)*	Kull et al. (2014)	Kull and Wacker (2010)
		Pakdil and Leonard (2017)*	Pakdil and Leonard (2017)* Vecchi and Brennan (2011)	
	Performance orientation	Bockstedt, Druhl, and Mishra (2015)	Kull et al. (2014) Vecchi and Brennan (2011)	Kull and Wacker (2010)
	Gender egalitarianism			Vecchi and Brennan (2011)
	Assertiveness		Kull and Wacker (2010) Kull et al. (2014)	Vecchi and Brennan (2011)
	Uncertainty avoidance	<i>Flynn and Saladin (2006)*</i>	Bockstedt, Druhl, and Mishra (2015)	
		Kull and Wacker (2010)	Cagliano et al. (2011)*	
		Kull et al. (2014)	Danese, Romano, and Boscari (2017)*	
	Humane orientation	Pakdil and Leonard (2017)*	Pakdil and Leonard (2017)* Vecchi and Brennan (2011) Wiengarten et al. (2011)*	
				Kull and Wacker (2010)
				Kull et al. (2014) Vecchi and Brennan (2011)
Others	Masculinity	<i>Flynn and Saladin (2006)*</i>	Cagliano et al. (2011)*	
		Pakdil and Leonard (2017)*	Danese, Romano, and Boscari (2017)* Pakdil and Leonard (2017)* Wiengarten et al. (2011)*	
	Long-term orientation		Danese, Romano, and Boscari (2017)*	

Notes: Papers published from 2000 to 2009 in italics.

\* Operationalised using Hofstede's dimensions.

in Sections 4.2.1 and 4.2.2 regarding the importance of including contextual conditions in the analysis of the impact of national culture because they can influence the strength and direction of culture-practice relationships. In brief, no national culture perfectly supports all aspects of OM.

### 4.3 Action: What actions can organisations take to manage culture-practice fit or misfit?

We identified only seven articles investigating actions to manage culture-practice fit or misfit, three concerning strategy, two concerning execution and two concerning improvement.

Regarding OM strategy, Pullman, Verma, and Goodale (2001) studied service design strategy in multicultural markets and found similar preferences for some attributes having universal appeal but also different preferences for other attributes, which fitted customers' cultural norms. They suggested combining customisation and standardisation in design services because this will help avoid misfit with the requirements affected by cultural norms while maintaining those attributes with universal appeal. Fredendall, Letmathe, and Uebe-Emden (2016) found that different cultural norms between Western customers and Chinese suppliers lead to problems in protecting the intellectual property of the customer, especially when national culture differences are exacerbated by interaction effects between cultural and national contextual variables (e.g. national regulations). The authors found that one action that could be taken to manage culture-practice misfit is to reduce collaboration with suppliers by avoiding information sharing and therefore protecting the customer's intellectual property. Finally, Han, Huang, and Macbeth (2017) found that performance-measurement systems designed for assessing partnerships with local suppliers were not sufficient for cross-national partnerships, because of their different cultural norms. The authors proposed to adapt them by including additional performance parameters to manage culture-practice misfit, such as assessing supplier attitudes, compromise and loyalty.

Concerning OM execution, Rodon, Serrano, and Giménez (2012) found cultural differences to be a source of conflict between the providers and beneficiaries of humanitarian aid, which reduced operational effectiveness. The authors analysed potential actions to resolve such conflicts and found that providers should change their cultural assumptions and behaviours to enable success. Drawing on the literature on international inter-organisational learning, Jia and Lamming (2013) developed the concept of 'cultural adaptation' in supply chain partnerships. They found that cultural adaptation, in terms of the partners attempting to behave more similarly, lead to mutual benefits, such as trust, collaboration, relationship effectiveness and cost reduction.

Two papers investigate potential actions aimed at OM improvement. Based on the organisational change literature, Boscari, Danese, and Romano (2016) identified four major actions, training, sense giving, pressure and practice adaptation, which can be taken to reduce the incongruence between a plant's national culture characteristics and improvement practices. Their study illustrates how to combine such actions with various transfer mechanisms (e.g. training through international teamwork) to align them with specific contextual characteristics over time. Adam, Flores, and MacIas (2001) found differences in quality improvement practices and performance between countries due to cultural differences. They suggested using different quality improvement practices in different countries, choosing only those with a good culture-practice fit.

Overall, we identified three main clusters of actions taken to manage culture-practice fit or misfit: practice selection, practice adaptation and culture adaptation. Table 6 provides a definition of each action, as well as the main sources of each action.

Finally, it is worth noting that four out of these seven studies (Rodon, Serrano, and Giménez 2012; Jia and Lamming 2013; Boscari, Danese, and Romano 2016; Han, Huang, and Macbeth 2017) used qualitative methods. This is in contrast with studies investigating the relevance and impact of culture, with the vast majority of reviewed articles using surveys (see Appendices). We suggest that qualitative methods are appropriate in studying actions – especially those actions that adapt practices to specific cultural settings – because they can capture the embeddedness and dynamism of the phenomenon.

## 5. Discussion and research agenda

The purpose of this paper is to review and classify OM research investigating the impact of national culture in order to describe the current state-of-the-art and set an agenda for future research. Overall, our findings show that although the debate on whether culture matters remains unsettled, the discussion is moving towards how culture influences OM. Our analysis reveals that there is no conclusive answer regarding the latter issue, and therefore, we encourage more research on the role of national culture in OM.

According to our findings, the way in which culture is analysed (aggregate vs. individual characteristics) and the limited consideration of the contextual variables interacting with culture may explain the inconclusive results found. Therefore, future research should adopt a fine-grained approach to national culture and include relevant contextual variables. Finally, we found a disappointingly low number of articles analysing actions taken to manage culture-practice fit or misfit. We therefore call for more studies on prescriptive actions to complement the available descriptive studies.

Table 6. Actions to manage culture-practice fit or misfit.

Action	Definition	Sources
Practice selection	The selection of the right practices to adopt, their levels of implementation and/or the right mix for a particular location	Adam, Flores, and MacIas (2001); Fredendall, Letmathe, and Uebe-Emden (2016); Pullman, Verma, and Goodale (2001)
Practice adaptation	The adaptation of the way practices are implemented to fit a specific context	Boscari, Danese, and Romano (2016); Han, Huang, and Macbeth (2017)
Cultural adaptation	The development of organisational cultures coherent with the practices implemented	Jia and Lamming (2013); Rodon, Serrano, and Giménez (2012)

The above findings and directions for future research are discussed in more detail in the following sections. We also discuss methodological considerations.

### 5.1 The influence of national culture

There has been a considerable debate in the literature regarding whether OM theory and practices are equally effective across countries or adaptation to various cultures is necessary (Hope and Muhlemann 2001). Much research has taken, more or less explicitly, the ‘universalistic view’ of internationally successful practices (Samaddar and Kadiyala 2006). In contrast, some studies embraced the ‘cultural relativity’ perspective, that is, theories and practices include culturally derived assumptions and, therefore, hold more completely in certain national cultural contexts (Ronen and Shenkar 2013).

Our analysis of the 15 articles investigating whether national culture matters suggests that its relevance to all OM dimensions remains debatable. Nevertheless, when considering all the reviewed studies, the vast majority (44 out of 51) found that culture mattered, and this held for all OM focus areas. Even after adjusting for publishing bias towards ‘positive results’, national culture appears to influence OM. Therefore, arguments in favour of a universal OM theory and ‘best practices’ warrant further scrutiny, and authors aiming to test theories should substantiate the generalisability of their results across national cultures.

Such research can be informed by the theory of the multinational firm as seen in the international business literature. Here, a number of works have related national culture to management strategy and organisation (e.g. Griffith, Cavusgil, and Xu 2008). Of particular interest are studies focusing on the implications for organisational practice implementation across globally dispersed business units that consider both the successful cases of practice internalisation (e.g. Kostova 1999) and ‘failures’ in terms of superficial or ceremonial adoptions (e.g. Kostova and Roth 2002). These studies can help explain why the generalisability of theory and practice would be precluded by cultural differences. According to Kostova’s (1999) framework, for instance, practice effectiveness varies across countries because practices reflect specific values that are consistent or not consistent with the cultural characteristics of a nation, thus affecting employees’ practice understanding and internalisation (i.e. ‘employees [...] attach symbolic meaning to the practice’, 311).

Future studies can adapt these frameworks to meet the specific needs of OM, such as considering international supply networks and the specific values embedded in OM theories. We recommend future research projects not limit their investigations to successful cases, as is typically done (see the review by Netland and Aspelund 2014), but also explore failures due to cultural diversity.

#### 5.1.1 Fine-grained approach to national culture

The differing results concerning culture may be explained by the way the reviewed articles analysed its impact. We observed that studies finding no effect on the part of culture – all investigating the issue of relevance – tended to assess its aggregate influence. However, the vast majority of studies analysing individual cultural characteristics found some cultural traits affecting OM strategy, OM execution and OM improvement.

Interestingly, this fine-grained analysis not only shows the relevance of culture but goes beyond this by helping us to understand how culture impacts OM. We relied on the GLOBE model to synthesise past research and identify the cultural characteristics that influence OM. Our analysis suggests that OM strategy is influenced mainly by institutional collectivism and uncertainty avoidance, which are found to be significant by the vast majority of articles. In addition, one study supports the influence of power distance, and another study indicates an effect on the part of the ‘gender’ trait (not in GLOBE). Also, OM execution seems to be influenced by more cultural traits than OM strategy: power distance,



institutional collectivism, in-group collectivism, future orientation, uncertainty avoidance and humane orientation (GLOBE), as well as Hofstede's masculinity and Hall's low-context. However, apart from institutional collectivism and uncertainty avoidance, the findings are supported by only one or two studies. Improvement in OM is also influenced by a wide set of cultural characteristics: power distance, institutional collectivism, future orientation, performance orientation, assertiveness and uncertainty avoidance, as well as Hofstede's masculinity and long-term orientation. As compared to OM execution, a larger number of studies support the findings for OM improvement (except for the assertiveness and long-term orientation traits).

A fine-grained approach also allows us to determine the direction (i.e. positive or negative) of the impact of culture. We found that the effect is not always positive or always negative but rather that each cultural characteristic can have opposing influences within the same OM area. We found opposing results for institutional collectivism and uncertainty avoidance in all the OM areas, for power distance and future orientation in OM execution and OM improvement and for performance orientation and masculinity in OM improvement. These mixed impacts are not only present for different practices within the same OM area but often also for the same practice.

Combining our findings, we suggest that culture has a complex influence on all OM areas. Based on the results of our study, almost two decades since the previous literature review of national culture in OM, we still lack 'a clear picture and understanding of the [culture-OM] inter-relationships' (Hope and Muhlemann 2001, p. 214).

We recommend that future research assess exactly how individual cultural characteristics affect OM practice. The GLOBE model may be a useful basis for doing so because it allows a comprehensive analysis of culture (a wider set of cultural traits as compared to other cross-cultural models) at various levels (homologous dimensions across national and organisational levels). However, we encourage future studies not to limit their investigations to GLOBE (or Hofstede) cultural traits. For example, research concerning the impact of cultural diversity on OM in developing countries may find some cultural traits to be missing (Steenkamp 2001). Moreover, as pointed out in Section 1, national culture is a dynamic phenomenon, which can be changed via globalisation (Bird and Stevens 2003). While the GLOBE model is now valid and widely used, it may be less relevant in the future (Kirkman, Lowe, and Gibson 2017). Operations management scholars should acknowledge the dynamic nature of culture and reassess its role in OM in light of such changes.

## 5.2 Interplay of national culture and contextual variables

Some reviewed articles assert that contextual variables can interact with culture. Some authors have found that organisational culture weakens the effects of national culture on OM strategy (Naor, Linderman, and Schroeder 2010) and OM improvement (Wiengarten et al. 2015). National wealth reduces the impact of culture on OM improvement (Bockstedt, Druehl, and Mishra 2015), and the national regulations limit the influence of culture on OM strategy (Fredendall, Letmathe, and Uebe-Emden 2016). Other contextual variables were included as control variables in some reviewed articles, but these did not have an interaction effect with culture. The most common ones were firm size (e.g. Kull and Wacker 2010), product type or industry (e.g. Li et al. 2010) and the production process (e.g. Yang et al. 2017). Finally, other articles suggest that national culture itself may, over time, be modified via economic development (Youngdahl, Ramaswamy, and Dash 2010) and globalisation (Cheung, Myers, and Mentzer 2010).

Some reviewed articles across the three OM areas did not include contextual variables in their investigation, and this may have affected their conclusions. This omission may perhaps explain some of the mixed results reported. Our findings highlight the relevance of contextual variables, which lends support to a similar review on culture in international business (López-Duarte, Vidal-Suárez, and González-Díaz 2016). We therefore urge future studies to investigate the interplay between national culture and contextual variables. One potential approach, as in Stringfellow, Teagarden, and Nie (2008), is to combine culture with contextual variables (e.g. geography and language distances) to develop new composite concepts such as 'interaction distance'.

## 5.3 Actions to manage culture-practice fit or misfit

Descriptive studies on culture are necessary but not sufficient for guiding practitioners in managing operations internationally (Marshall, Metters, and Pagell 2016). Once managers know how national culture influences operations, they still require appropriate actions with which to leverage or mitigate national culture traits. Although this area has considerable potential to inform practice, we identified only seven studies explicitly investigating actions. One possible explanation is the limited maturity of research on culture in OM in general. Even if culture is not a new concept in OM (Hope and Muhlemann 2001), our findings show that this field is still struggling to understand how culture affects operations. Without a clear understanding of the impact of culture, it is difficult to identify effective actions.

We found three main actions from the analysis of the seven reviewed studies: practice selection, practice adaptation and cultural adaptation. Because not all these actions have been studied in all of the OM focus areas, one direction for future research would be to test their effectiveness across these OM areas. Particular attention should be devoted to cultural adaptation because culture is rooted in the values of individuals and is very difficult to change (Schein 2010). The organisational behaviour literature shows that cultural adaptation may result in a lengthy process requiring considerable resources, as well as requiring managers to manage complex change; therefore, it may sometimes be unrealistic to accomplish cultural adaptation (Schwartz and Davis 1981).

Future studies should also include other potential actions that could be taken to manage the fit or misfit between culture and practices. One interesting guideline regarding how to include cultural adaptation is provided by Metters (2008), who suggests (though without testing) a multidisciplinary approach to managing culture-practice fit or misfit, one combining OM and human resource management practices. We urge researchers to consider the behavioural OM and organisational behaviour literature, which aims at understanding employee behaviours to generate interventions for the sake of operational and organisational effectiveness (Loch and Wu 2007; Mullins 2016). Here, variations in employee behaviours due to differing national cultural contexts and the importance of a planned change of behavioural patterns have long been recognised (Loch and Wu 2007; Mullins 2016). Some scholars have also suggested not designing actions in isolation but rather pursuing reinforcement among bundles of actions (e.g. Nadler and Tushman 1980).

#### 5.4 Methodological concerns

To increase the robustness of cross-cultural OM research, we encourage future studies to address three methodological concerns. First, most of the reviewed studies are survey-based and cross-sectional, which is typical of the OM literature (Taylor and Taylor 2009). While this design can be appropriate for understanding the impact of culture in OM, it is less useful for suggesting actions to manage culture-practice fit or misfit. For this, a method must capture changes and dynamic effects over time (Rodon, Serrano, and Giménez 2012; Jia and Lamming 2013; Boscari, Danese, and Romano 2016). Longitudinal designs using context-rich approaches (e.g. case studies) and anthropological, ethnographic or phenomenographic approaches would address this concern.

Second, future research should link its results to accepted cross-cultural models using existing cultural dimensions or adding new traits. As Hofstede, Hofstede, and Minkov (2010) asserted, using acknowledged measures of culture avoids common measurement pitfalls, such as developing instruments that are only relevant to a specific culture. However, existing cross-cultural models include a limited set of cultural characteristics and may need extension to capture the most prominent cultural differences influencing OM (Steenkamp 2001) (Hofstede himself extended his original four-dimensional model by adding two cultural traits). In both cases, relating the results to accepted models would facilitate comparisons between studies. The Hofstede's and GLOBE models are by far the most widely used in OM; therefore, we suggest their continued use as building blocks in future studies.

Third, one limitation of the reviewed articles concerns the coverage of national cultures. Specifically, GLOBE uses ten clusters, three of which are rarely discussed in the reviewed studies (the Sub-Saharan Africa, Middle East and Southern Asia clusters). Although some countries may be more important in this field than others, the OM discipline is present in all countries and cultures. This is a significant gap, and consequently, we encourage researchers to address underrepresented cultures.

#### 6. Conclusions

We reviewed recent articles addressing the role of national culture in OM, which appear to constitute a growing stream of research. Based on the review, Figure 1 provides a guiding framework for future research in this domain. The left side of the framework shows the key questions concerning culture. These questions relate to 'relevance', 'impact' and 'action'. None of these questions have been definitively answered in the existing literature. The right side of the framework summarises our recommendations for future research.

The questions in Figure 1 can be interpreted as key steps in analysing national culture in OM by imposing step-by-step, increasingly stringent requirements. We suggest that the question of 'action' should be addressed after the question of 'impact' has been clarified. Ideally, one would have a robust understanding of how culture affects OM before proposing actions to manage culture-practice fit or misfit. Similarly, 'impact' should be addressed after 'relevance'. As Pagell, Katz, and Sheu (2005) observed, it is important to have conclusive evidence as to whether culture is a relevant explanatory factor before investigating its impact. Our review suggests that national culture is relevant to OM practice. However, in the light of the intensification of globalisation, further empirical research should investigate whether this conclusion remains true in the future.



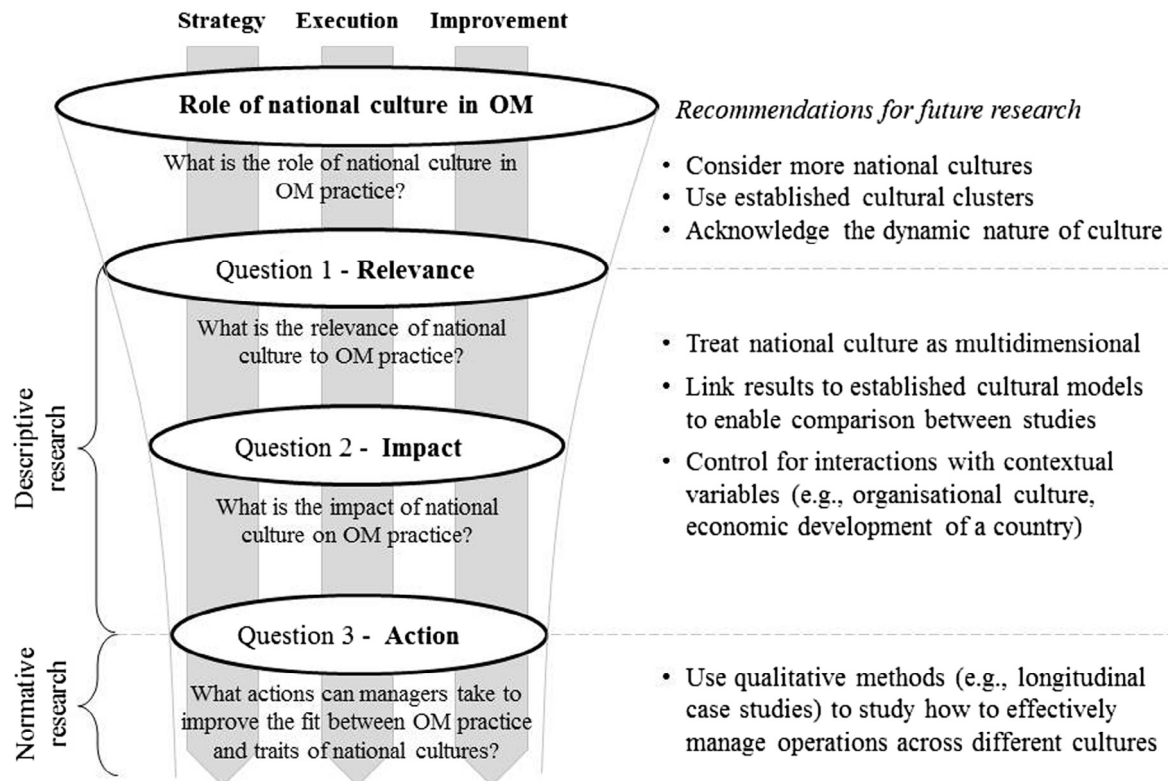


Figure 1. Framework for guiding future research.

### 6.1 Contribution to theory

This review contributes to the literature in several ways. First, by synthesising recent OM studies on national culture, we show that the main area of debate has moved from whether culture matters to how it influences OM practice. However, a clear understanding of culture's impact remains elusive.

Second, by providing more conclusive evidence regarding the relevance of culture, we established support for the cultural relativity of OM theory. The universality of some OM theories and practices across countries has been questioned by researchers. One notable example is quality management theory (OM improvement), which was originally developed in Japan and then transferred to other countries with various results (e.g. Metters 2008). However, in OM, 'scholars have focused more on the development of new theories than the extension and generalisation of existing work [...] across populations and contexts', limiting the development of this field (Samaddar and Kadiyala 2006, p.911). Our findings, which suggest that national culture influences OM strategy, OM execution and OM improvement, challenge the universality of OM theories. For example, sustainability theory has received a considerable amount of interest, but its generalisability across cultural contexts has not been addressed in the top OM journals.

Third, this review offers a deeper understanding and comprehensive picture of the relationship between culture and OM practice. We used the GLOBE model (complemented with few additional cultural characteristics) to classify the results of recent studies on the effects of national culture on OM strategy, OM execution and OM improvement. On the one hand, this analysis revealed the importance of studying culture as a multidimensional concept because each cultural trait can have a positive, negative or non-significant influence. According to the current understanding, OM strategy seems to be affected by a few cultural characteristics (i.e. institutional collectivism and uncertainty avoidance), while differences in OM execution and OM improvement are explained by a wider range of cultural traits. On the other hand, we have identified contrasting results, which may be explained by the limited consideration of the contextual variables that interact with national culture.

Fourth, our synthesis of past research using GLOBE can serve as a reference for future researchers if they aim to explain conflicting results or analyse the impact of other cultural traits.

Fifth, the review contributes to the development of OM theory by identifying areas related to national culture that deserve further investigation. For example, we found a new promising area concerning *actions* that can help in managing operations across cultures. We also call for more OM research in underrepresented cultures.

Finally, we offer methodological guidelines regarding how to improve the robustness of future research.

## 6.2 Limitations

Culture is a complex phenomenon, and some choices made to ease cultural analysis can lead to limitations, which are important to take into account. Our literature review focused on culture at the national level, ignoring papers focusing on other cultural levels. While national and organisational cultures are different phenomena (Hofstede, Hofstede, and Minkov 2010), there is (as we have argued) likely to be an important interplay between them.

We focused on national cultural differences and cultural distance between countries, although other cultural layers can be distinguished, such as intra-country cultural diversity (Beugelsdijk, Kostova, and Roth 2017). However, the country is an important and valid unit of analysis because there is some meaningful degree of intra-country commonality and inter-country differences in culture (Hofstede 1980; Steenkamp 2001). As such, we echo recent recommendation not to abandon it but rather to integrate measures of intra-cultural diversity into future research (e.g. Beugelsdijk, Kostova, and Roth 2017).

Our literature review covers an 18-year period in which globalisation may have intensified and national cultures and their influence on OM may have changed as well (Beugelsdijk, Kostova, and Roth 2017). Instead of shortening the time period under analysis and excluding relevant contributions, we controlled for the time span of the publications in an attempt to assess the current validity of our conclusions.

Our qualitative literature review was limited to 10 leading OM journals. While this choice was motivated by the focus of our study, one side effect was to narrow the range of papers considered. Future research can extend our review by broadening the focus to other fields, such as international business, human resources and innovation. In addition, qualitative analysis can be complemented by reviews using quantitative or bibliographic methodologies.

## Disclosure statement

No potential conflict of interest was reported by the authors.

## Supplemental data

Supplemental data for this article can be accessed here. [<https://doi.org/1080/00207543.2018.1461275>]

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